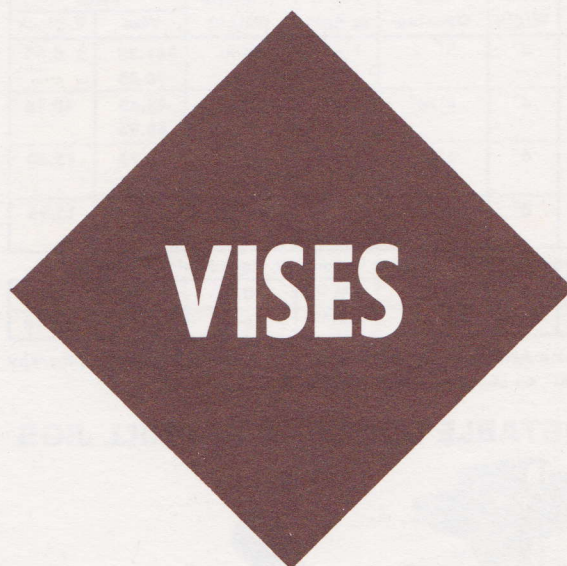


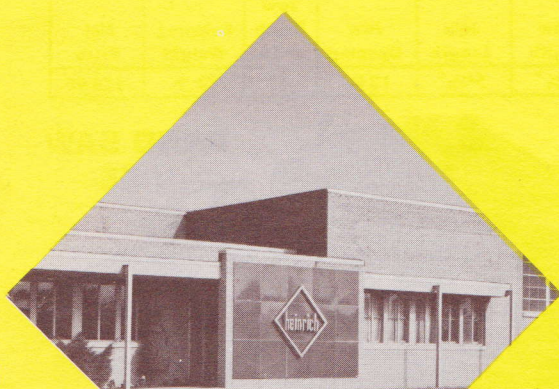



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VISES

GRIP-MASTER QUICK-ACTING VISES • AIR VISES • SELF-CENTERING VISES • CROSS-HOLE DRILL JIGS • AIR COLLET CHUCK • METAL CUTTING TOOLS

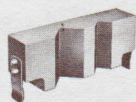
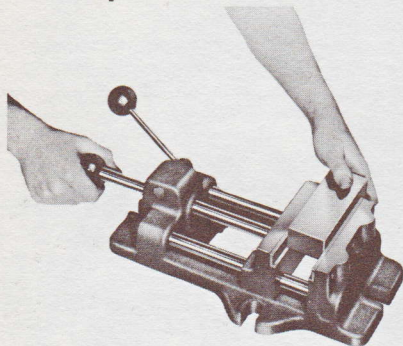



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Grip-Master DRILL PRESS VISES



V-Block Attachment Holds Round Stock

Screwless design for rapid opening, closing and locking. To set, push center bar up to work. Press on lever cams jaw ahead $3/32$ ", exerting holding pressure adjustable from 400 to 1600 lb. Recessed parallel jaw inserts, $5/8$ " deep, level work, can be removed to accommodate jig and fixture components. Hollow base for clear through drilling. Hardened and ground bars and locking mechanism.

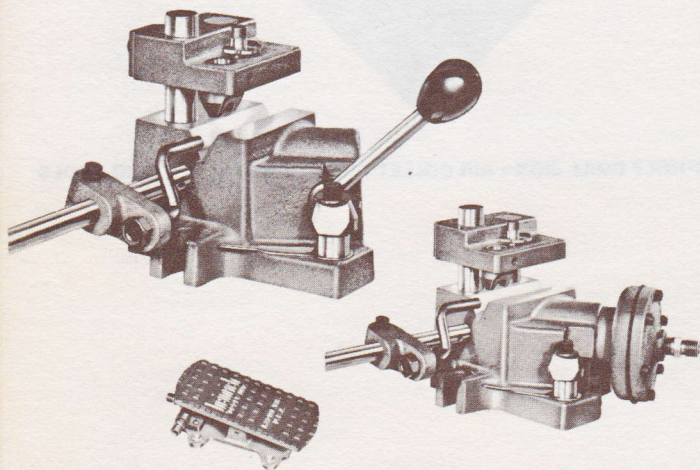
No.	Jaw Width	Jaw Opening	Depth to Bars	Shipping Weight	Price	
					Vise	V-Block
3-SV	3"	3"	1 $1/4$ "	10 lb.	\$31.35	\$ 8.80
3-PA *					36.85	
4-GM	4"	4 $1/16$ "	1 $3/16$ "	20 lb.	43.45	10.18
4-GMPA *					48.95	
6-SV	6"	6 $3/16$ "	1 $13/16$ "	34 lb.	57.75	13.20
6-PA *					65.45	
8-SV	8"	8 $3/16$ "	2"	50 lb.	76.45	15.95
8-PA *					84.15	

Three-Sided Vises, Sides Ground at Right Angles to Jaws.

3-TS	3"	3"	1 $1/4$ "	10 lb.	34.65	8.80
4-TS	4"	4 $1/16$ "	1 $3/16$ "	18 lb.	46.75	10.18

* PA (Pumping Action) — Operator is able to "pump" jaw forward, thereby "taking up" on compressible materials.

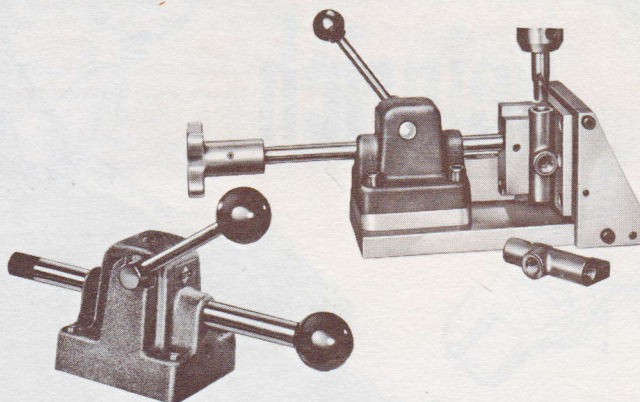
ADJUSTABLE CROSS-HOLE DRILL JIGS



For cross-hole drilling of $1/8$ " to $2-1/2$ " round or hex stock. Clamping plate adjusts to size of workpiece. A press on locking lever or actuating air valve, pulls the clamping plate down against the workpiece, with a travel of $3/64$ ". Release lever or air valve and the part can be removed. An adjustable stop with 9" long rod for locating work longitudinally, furnished for use on either side of jig. Furnished with liners indicated to hold standard ASA Bushings.

Model	Capacity, in.	I.D. of Liners Furnished	Shipping Weight	Net Price
305	$1/8$ to $3/4$	$3/16$, $1/2$	13 lb.	\$ 70.95
AR-305			20 lb.	91.95
605	$3/4$ to $1-1/2$	$3/16$, $1/2$, $3/4$	20 lb.	87.45
AR-605			27 lb.	109.00
905	$1-1/2$ to $2-1/2$	$5/16$, $1/2$, $3/4$	40 lb.	137.50
AR-905		1, $1-1/8$	50 lb.	161.25

Grip-Master FIXTURE LOCKS

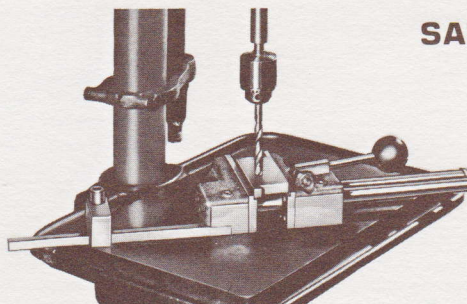


Quick acting clamps simplify jig and fixture design, speed production. Long travel provides plenty of chip clearance, easy loading and unloading. Gets into hard-to-reach places. Bar soft 1" on one end for adapting to fixture. Screwless design for rapid positioning and locking. To set, push center bar up to work. Press on lever cams jaw ahead $3/32$ " exerting holding pressure adjustable from 400 to 1600 lb.

No.	Length	Width	Height	Length of Holding Bar*	Shipping Weight	Net Price
2-FL	3 $3/16$ "	3 $3/16$ "	2 $7/8$ "	9" (.493 Dia.)	4 lb.	\$19.80
2-PA **						25.30
9-FL	4 $1/4$ "	3 $1/16$ "	3 $1/8$ "	10" (.742 Dia.)	8 lb.	23.65
9-PA **						31.35

* Special bars available in 12, 14, 16, 18 and 24-in. lengths.

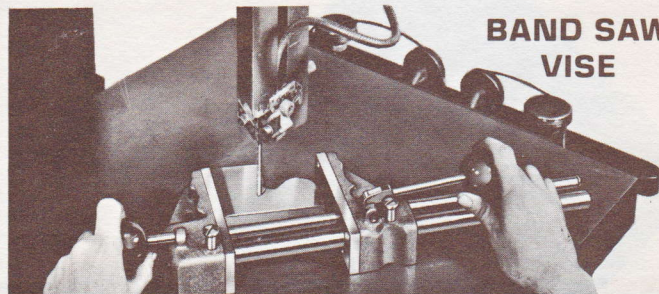
** PA (Pumping Action) — Operator is able to "pump" jaw forward, thereby "taking up" on compressible materials.



SAFETY DRILL VISE

Sets instantly by sliding movable jaw into position. Press on lever advances jaw, locking workpiece securely. Built-in recessed parallel jaws hold work square. Vertical V-Groove in jaw provides grip on rounds. Mounts on drill press table, swings away when not in use.

No.	Jaw Width	Jaw Length	Jaw Opening	Jaw Depth to Bar	Shipping Weight	Net Price
13-WH	1 $3/4$ "	5 $21/32$ "	12 $3/4$ "	3"	13 lb.	\$48.95

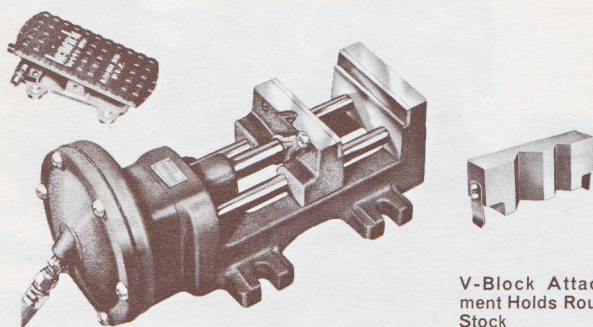


BAND SAW VISE

Sets instantly by sliding movable jaw into position. Press on lever advances jaw, locking workpiece securely. Hands are clear of saw for safe operation.

No.	Jaw Width	Jaw Length	Jaw Opening	Jaw Depth to Bar	Shipping Weight	Net Price
12-WH	1 $3/4$ "	5 $21/32$ "	12 $3/4$ "	3"	13 lb.	\$43.45

SINGLE-ACTING AIR VISES

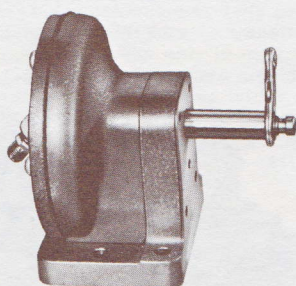


V-Block Attachment Holds Round Stock

Diaphragm type, spring-return air cylinder, 3/8" maximum jaw travel. Holding power, 15X air pressure. Ratchet adjusting screw for quick positioning. Recessed parallel jaw inserts, 5/8" deep, level work, can be removed to accommodate jig and fixture components. Hollow base for clear through drilling. Furnished with No. 34-12CI Three-Way Foot Treadle Valve, and two No.34-14 air hoses.

No.	Jaw Width	Jaw Opening	Jaw Depth to Bars	Shipping Weight	Price	
					Vise	V-Block
33	3"	3 1/8"	1 1/4"	21 lb.	\$59.50	\$ 8.80
44	4"	4 5/8"	1 5/8"	30 lb.	74.90	10.18

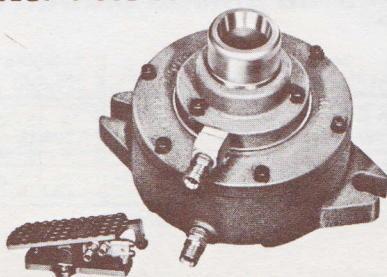
SINGLE-ACTING AIR CLAMPS



Diaphragm type, spring-return air cylinder, 3/8" maximum travel. Holding power, 15X air pressure. Ratchet adjusting screw for quick positioning. May be mounted for vertical or horizontal operations. Piston rod adjustable to any point 2-7/8" by means of ratchet-operated triple-lead thread adjusting screw. Operates with Heinrich No. 34-12CI Three-Way Foot Treadle Valve and two No. 34-14 hoses.

No.	Over-all Height	Overall Width	Depth of Base	Min. Dim. Rod Extension	Shipping Weight	Net Price
55-3	6 1/8"	5 3/4"	3 3/8"	5/8"	11 lb.	\$37.40
55-4	6 1/8"	5 3/4"	3 3/8"	2 5/8"	11 lb.	37.40

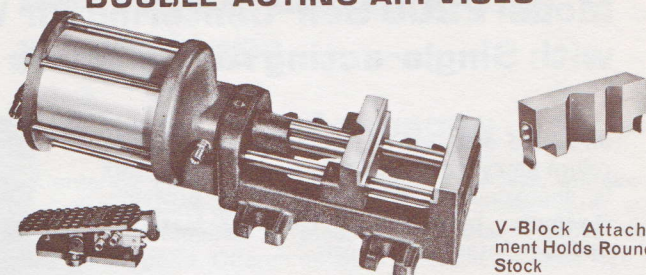
No. 1-AC AIR COLLET FIXTURE



Uses standard 5-C collets up to 1-1/16" dia. to hold round, hexagonal and square workpieces. Has 1-7/64" hole through unit. Double-acting air cylinder provides power 18X air pressure. Furnished with Four-Way Foot Treadle and three hoses.

Model	Overall Width	Overall Height	Shipping Weight	Net Price
1-AC, Complete	8 1/4"	5"	26 lb.	\$120.88
1-AC-A, Fixture only	8 1/4"	5"	18 lb.	101.75

DOUBLE-ACTING AIR VISES

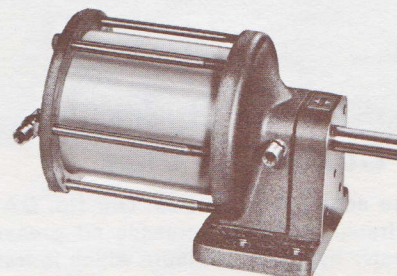


V-Block Attachment Holds Round Stock

Double-acting, piston type air cylinders. Full travel of jaw opening. Return of jaw under air pressure. Stop rod, cut to desired length, regulates opening by limiting jaw return. Recessed parallel jaw inserts, 5/8" deep, level work, can be removed to accommodate jig and fixture components. Hollow base for clear through drilling. Furnished with No. 45-12CI Four-Way Foot Treadle Valve, and three No. 34-14 hoses.

No.	Jaw Width	Jaw Opening	Jaw Depth to bars	Power Factor	Shpg. Wt.	Price	
						Vise	V-Block
DA-3301	3"	3 1/4"	1 1/4"	15X	25 lb.	\$ 90.08	\$ 8.80
DA-4401	4"	5"	1 5/8"	15X	34 lb.	107.68	10.18
DA-6601	6"	7 3/8"	2 1/2"	19X	82 lb.	167.08	15.95

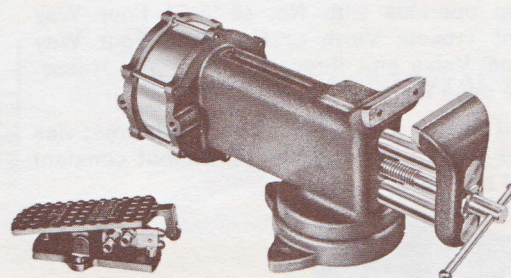
DOUBLE-ACTING AIR CLAMPS



Long travel, piston type air cylinder. Holding power up to 19X air pressure. Mounting holes provided for horizontal or vertical mounting. Operates with No. 45-12CI Four-Way Foot Treadle and three No. 34-14 hoses.

No.	Over-all Height	Overall Width	Depth of Base	Piston Travel	Power Factor	Shipping Weight	Net Price
DA-5503	6 1/8"	5 3/4"	3 3/8"	3 3/8"	15X	13 lb.	\$ 56.65
DA-5504	6 1/8"	5 3/4"	3 3/8"	4 7/8"	15X	14 lb.	57.75
DA-6607	6 3/4"	8"	6"	7 3/8"	19X	59 lb.	128.70

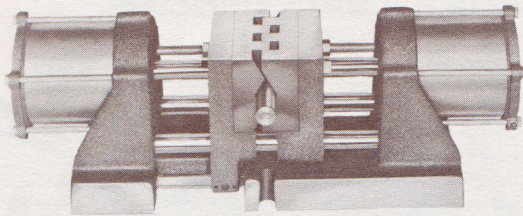
No. 14 PRODUCTION BENCH VISE—



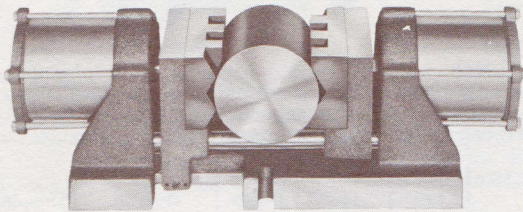
Opens and closes like an ordinary bench vise. Double acting cylinder provides 1" travel, holding power 33X air pressure. 4-1/2" jaw width opens to 6 inches. Furnished with Four-Way Foot Treadle and three hoses.

Model	Shipping	
No. 14	110 lb.	\$271.63

SELF-CENTERING



Heinrich Model DA-6600-SC Self-Centering Air Vise, with No. 6619 horizontal V-Jaws, automatically centers round stock, ranging in size from 1" to 5".

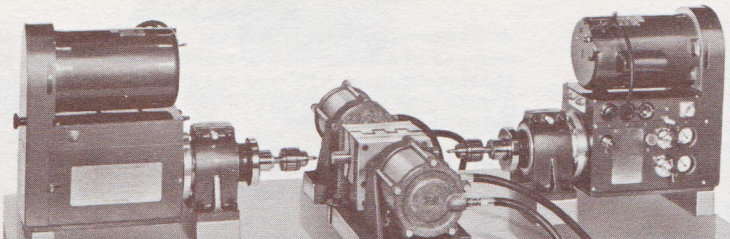
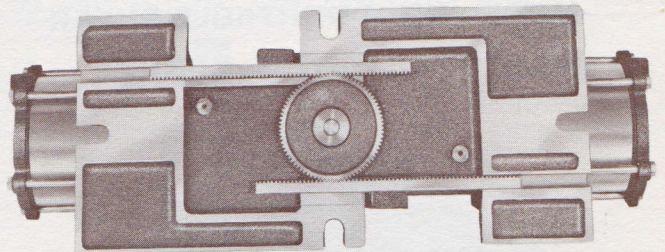


Heinrich Self-Centering Air Vises automatically center in this manner: Each of two opposing jaws is actuated directly by a double-acting piston type air cylinder on both ends of the vise. Jaws are mounted on hardened and ground parallel bars to maintain perfect jaw alignment. The jaws are connected by a gear and rack assembly concealed in the vise base so that they move together equally on both sides of center, within an accuracy of $\pm .001"$. This mechanism is fully protected from dirt, chips and coolant. No pressure is transmitted through the centering device, which serves only to guarantee uniformity of jaw travel. Double acting air cylinders provide full travel of the jaw opening, and return of the jaws under air pressure. The amount of jaw return may be regulated by equally adjusting the length of the threaded stop rods attached to the back of each jaw. The rods stop against the vise body casting when the jaws are in the open position.

**Automatically centers parts
varying in size**

1/4" to 9" round capacity . . .

Heinrich Self-Centering Vises, with piston type air cylinders, will accommodate dimensional variation in workpieces and odd-shaped parts, when the machining operation requires the location of an exact relative center or other predetermined point. Offered as an attachment for each vise is a set of interlocking, hardened and ground, horizontal V-jaws. The vises, when fitted with the standard V-jaws, will, with one setup, automatically center round stock varying in size. This considerably reduces set-up time in center drilling, trepanning, boring, and a wide range of machining operations. Vises may also be fitted with special false jaws to correctly position irregularly shaped parts.



Heinrich Model DA-6600-SC Self-Centering Air Vises, fitted with No. 6619 Horizontal V-Jaws, in center-drilling operation with DUMORE Drill Heads. Automatically centers round stock ranging in size from 1" to 5", with one setup.

Self-Centering Air Vises . . . with double acting air cylinders

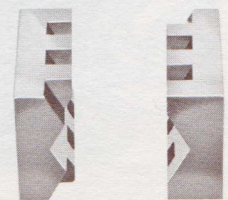
Model	Jaw Width	Jaw Depth	Jaw Travels Each/Total	Jaw Opening Min./Max.	Overall Lgh./Hgt.	Power Factor	Shipping Weight	Net Price*
DA-2200-SC	4"	2"	1 1/8" / 2 1/4"	1" / 3 1/4"	20 1/2" / 6 1/8"	15X	44 lb.	\$214.50
DA-6600-SC	6"	3 1/32"	3" / 6"	2 3/4" / 8 3/4"	26 1/2" / 8 7/8"	19X	152 lb.	495.00
DA-8800-SC	8"	6 1/32"	5 1/4" / 10 1/2"	3 1/2" / 14"	38 1/4" / 12 3/8"	33X	390 lb.	654.50

*Price indicated is for vise only, without controls.

Model DA-2200-SC operates with No. 45-12CI Four-Way Foot Treadle or No. 45-18 Four-Way Hand Valve. Seven No. 34-14 air hoses and one manifold are required to set up for operation

Models DA-6600-SC and DA-8800-SC require 3/8" I.D. hoses or pipe, and a 3/8" Four-Way Valve and controls. We do not furnish 3/8" air access-ories. These are available from several air component manufacturers.

INTERLOCKING HORIZONTAL V-JAWS



Model	Capacity Min. (Round)	Max.	Shipping Weight	Net Price
2219 (for DA-2200-SC)	1/4"	1 3/4"	6 lb.	\$ 98.00
6619 (for DA-6600-SC)	1"	5"	18 lb.	105.00
8819 (for DA-8800-SC)	2"	9"	53 lb.	184.00

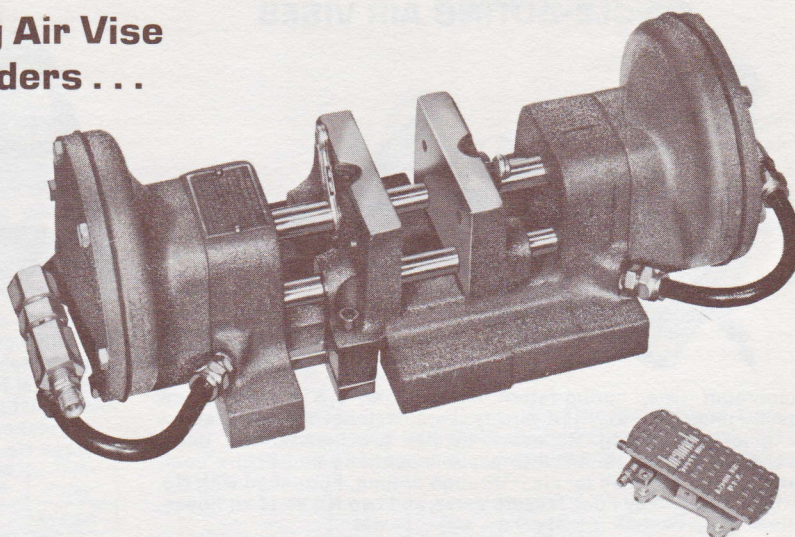
Model 2200 Self-Centering Air Vise with Single-acting Air Cylinders . . .

Jaws are actuated by diaphragm-type, spring return air cylinders. Holding power on the work is approximately 15 times air line pressure. (Example: 1,500 lbs. at 100 psi.) Maximum operating pressure 150 psi.

Movable jaws are independently adjustable. Quickly set in position by ratchet-operated, triple lead thread adjusting screw.

4" wide jaws infinitely adjustable from 1" to 3-1/4" opening. Maximum travel after setting — 3/8", each jaw, total of 3/4" opening. Our quick Exhaust Valve No. 36 is furnished with vise for rapid jaw return travel. Vise operates with No. 34-12CI Three-Way Foot Treadle Valve or No. 34-18 Three-Way Hand Valve and two No. 34-14 Air Hoses. See page 11 for air accessories.

Foot treadle leaves operator's hands free; vise jaws remain open or closed without constant foot pressure.



PRICES and WEIGHTS:

	Model	Shipping Weight	Net Price
2200	(Complete with No. 34-12CI Foot Treadle Valve and two No. 34-14 Air Hoses.)	49 lbs.	\$183.25
2200-A	Vise only	43 lbs.	170.50

Model 77 Air-Hydraulic Self-Centering Vise . . .

Jaws are actuated as follows: Our No. DA-18 Air Hydraulic Booster increases air pressure into greater hydraulic pressure which is transmitted to the jaws through a flexible hose. Hydraulic cylinders in the jaws develop holding power on the work of 40 times air line pressure. (Example: 4,000 lbs. at 100 psi.) Maximum operating pressure 150 psi.

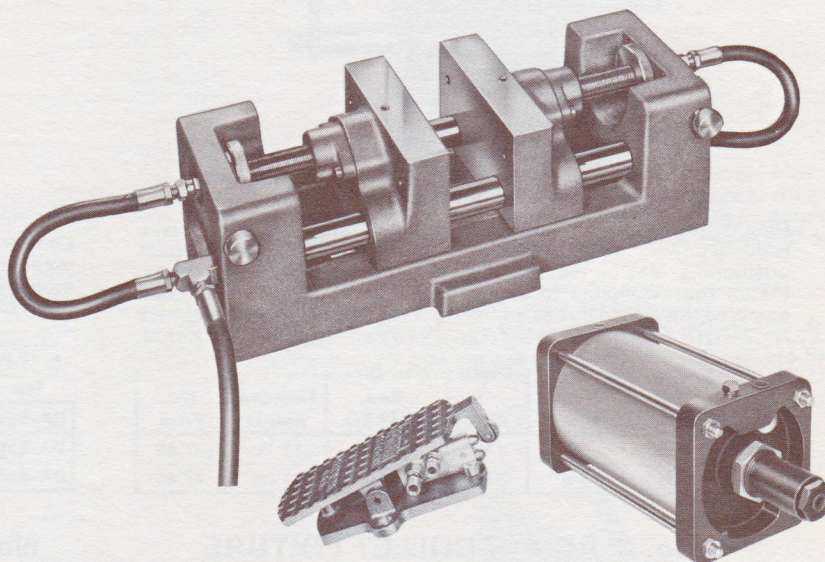
Vise jaws automatically adjust equally in relation to center . . . by knurled adjusting nuts, locked by hand screws at both ends of vise.

7" wide jaws infinitely adjustable to 7-3/4" opening. Maximum travel — 11/16", each jaw, total of 1-3/8".

Quick Exhaust Valve No. 36 connected to No. DA-18 Booster for rapid jaw return travel.

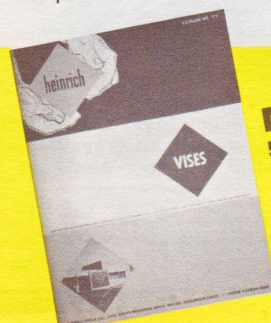
Vise operates with No. 45-12 CI Four Way Foot Treadle Valve or No. 45-18 Four Way Hand Valve and three No. 34-14 Air Hoses. See page 13 for accessories.

Foot treadle leaves operator's hands free; vise jaws remain open or closed without constant foot pressure.



PRICES and WEIGHTS:

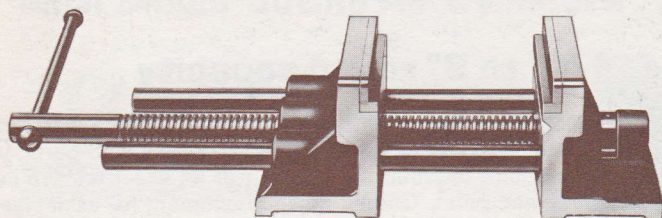
	Model	Shipping Weight	Net Price
77	(Complete with No. DA-18 Booster, No. 45-12CI Foot Treadle and three No. 34-14 Air Hoses)	206 lb.	\$759.13
77-A	(Vise only, with No. DA-18 Booster attached — without foot treadle or hoses)	183 lb.	740.00



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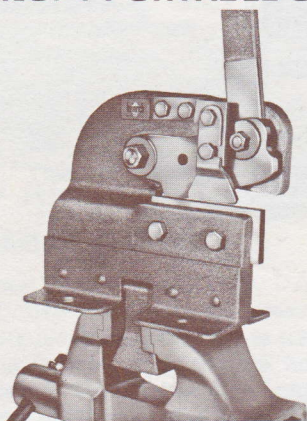
DRILL PRESS VISE



Can be used from three sides. Removable recessed parallel jaw inserts, 5/8" deep, level work. Ample clearance from jaw step to table. Sides precision ground at right angles to jaws. Horizontal V-Groove in Models 20 and 30 holds round stock for side and end drilling.

No.	Jaw Width	Jaw Opening	Jaw Depth to Bars	Overall Height	Shipping Weight	Net Price
10	3"	3 3/8"	1 1/8"	2 1/8"	5 lb.	\$25.85
20	6"	10"	2"	4 1/8"	21 lb.	48.95
30	8"	10"	2 1/2"	5"	36 lb.	63.25

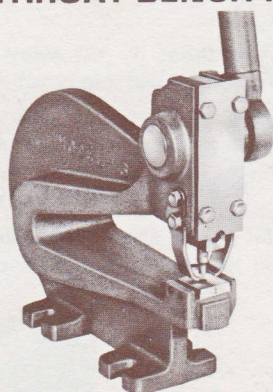
MODEL NO. 1 PORTABLE SHEAR



Shears wide flat stock up to 1/8" thick, straight cuts or outside curves. Cuts rods up to 5/16". May be mounted on a bench or clamped in a vise.

No. 1	Shipping Weight, 18 lb.	Each	\$59.95
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MODEL NO. 6 DEEP THROAT BENCH PUNCH

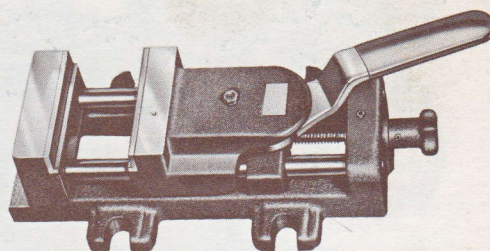


Punches a 1/2" hole through 1/8" thick steel. Eight-inch throat depth. Punches and dies available in rounds from 1/16" to 1/2" by 64ths. 24" handle. Shipping weight, 44 lbs.

No. 6 Punch,	Each	\$87.45
Extra Punches and Dies, per set		4.38

(Price includes 1/4" Round Punch and Die Set unless other size is specified.)

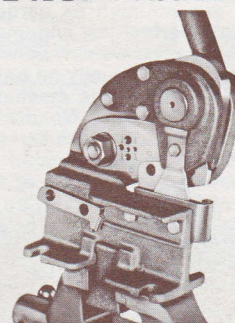
CAMLOCK VISE



A short, horizontal movement of the locking lever securely clamps or releases the part. Recessed parallel jaw inserts, 5/8" deep, level work, can be removed to accommodate jig and fixture components.

No.	Jaw Width	Jaw Opening	Jaw Depth to Bars	Overall Lgth. x Hgt.	Shipping Weight	Net Price
4-CL	4"	4"	1 3/8"	11 3/4" x 3 1/8"	23 lb.	\$68.75

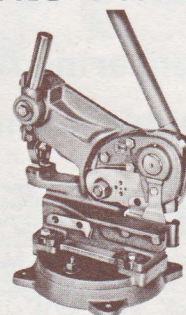
MODEL NO. 4 HANDNIB



A combination nibbler, shear and rod cutter. May be clamped in a bench vise or mounted on a bench. Nibbles sheet metal up to 3/16" into any shape — inside or outside. Shears wide flat stock up to 3/16". Cuts rods up to 3/8" dia. Shipping weight, 29 lbs.

No. 4-A, for Inside and Outside Nibbling, Shearing and Rod Cutting	Each	\$137.50
*No. 4-B, for Shearing and Rod Cutting only	Each	115.50

MODEL NO. 5-A HANDNIB



A combination nibbling, shearing, rod cutting and punching machine. Nibbles sheet metal up to 3/16" into any shape — inside or outside. Inside nibbling depth of cut 4" from any outside edge. Shears wide flat stock up to 3/16" — straight cuts and outside curves. Cuts rods up to 3/8" dia. Punching capacity up to 1/2" hole through 1/8" thick mild steel. Punches and dies available in rounds from 1/16" to 1/2" by 64ths. 24" handle. Shipping weight, 90 lbs.

No. 5-A,	Each	\$253.00
Extra Punches and Dies, per set		4.38

(Price includes 1/4" Round Punch and Die Set unless other size is specified.)